ABSTRACT

The invention is directed to a system for processing an electromagnetic wave by receiving rectangular coordinate information for the electromagnetic wave; and directly converting the rectangular coordinate information into a magnitude signal, a sin(Φ), and a cos(Φ) signal using a CORDIC algorithm, where Φ represents a phase of the electromagnetic wave. The direct converting my be accomplished using shift and add/subtract operations in a processor and a look-up table, or by using at least two cascaded processors employing the CORDIC algorithm.